UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,744	10/24/2003	Taixu Bai	5659-21400/EBM	2398

7590 01/04/2006

DEL CHRISTENSEN
SHELL OIL COMPANY
P.O. BOX 2463
HOUSTON, TX 77252-2463

EXAMINER	
KRECK, JOHN J	

ART UNIT	PAPER NUMBER
3673	

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/693,744	BAI ET AL.	
	Examiner	Art Unit	
	John Kreck	3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *121-154 and 188-205* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *121-154,188-205* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 57 pages
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election of claims 121-154 and 188-205 in the reply filed on 10/11/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 121-154 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are considered indefinite on two separate grounds:

Independent process claim 121 requires at least one of the wellbores to have been sized "at least in part, based on a determination of expansion of the formation caused by heating of the formation such that expansion of the formation caused by heating of the formation is not sufficient to cause substantial deformation of one or more heaters..." One of ordinary skill in the art would be unable to determine the metes and bounds of the claimed sizing of the wellbore. Does the claim require a positive act of calculating stresses, strengths, etc? Would the knowledge and experience of one of ordinary skill in the art anticipate or infringe on such a "determination"? One of ordinary skill in the art would (presumably) initiate any known heating process with the

expectation that there would be no substantial deformation, since success of the heating would be predicated on continued utility of the heater: would one's knowledge or guess that a heater will not be substantially deformed anticipate or infringe on the determination? What if one makes such a determination, and the determination was in error? (i.e. the claim calls for the size based on the determination, but what if such determination concludes that no substantial deformation will occur, but upon practice, the heater is substantially deformed? It is not clear if the claim is intended to cover only a theoretical determination of a lack of substantial deformation, or both a determination of a lack of deformation and actual practice of heating without incurring substantial deformation)

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 121 recites the

broad recitation "sized at least in part, based on a determination of expansion of the formation caused by heating of the formation such that expansion of the formation caused by heating of the formation is not sufficient to cause substantial deformation of one or more heaters...", and the claim also recites "wherein a ratio of an outside diameter of the heater to an inside diameter of the wellbore is less than about 0.75" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 188-205 are rected under 35 U.S.C. 102(e) as being anticipated by each one of US 6871707 B2, US 6866097 B2, US 6820688 B2, US 20040211557 A1, US0040211554 A1, US 6805195 B2, US 6789625 B2, US 6782947 B2, US 6769485B2, US 6769483 B2, US 6763886 B2, US 6761216 B2, US 6758268 B2, US 6752210 B2, US 6749021 B2, US 20040108111 A1, US 6745837 B2,US 6745832 B2, US 6745831 B2,US 6742593 B2, US 6742589 B2,US 6742588 B2, US 6742587 B2,US 6739394 B2, US 6739393 B2,US 6736215 B2, US 6732796 B2,US 6732795 B2 , US 6732794 B2, US 6729401 B2,US 6729397 B2, US 6729396 B2, US 6729395 B2, US 6725928 B2,US 6725921 B2 ,US 6725920 B2, US 6722431 B2, US 6722430 B2,US 6722429 B2, US 20040069486 A1, US 6719047B2, US 6715549 B2, US 6715548 B2, US 6715547 B2,

US 6715546 B2,US 6712137 B2 ,US 6712136 B2 , US 6712135 B2, US 6708758 B2, US 6702016 B2, US 6698515 B2, US 6688387 B1, US 20040015023 A1, US 20030209348 A1, US 20030173080 A1, US 20030173078 A1, US 20030164239A1, US 20030164238 A1, US 20030164234 A1, US 6609570 B2, US 6607033 B2, US 20030148894 A1, US 20030146002 A1, US 20030142964 A1, US 20030141068A1, US 20030141067 A1, US 20030141066 A1, US 20030141065 A1, US 20030137181A1, US 20030136559 A1 ,US 20030136558 A1, US 20030131996 A1, US 20030131995A1, US 20030131994 A1,US 20030131993 A1 , US 6591907 B2, US 6591906 B2, US 20030130136 A1, US 6588504 B2, US 6588503 B2, US 20030116315 A1, US 6581684B2, US 20030111223 A1, US 20030102130 A1, US 20030102126 A1, US 20030102125 A1, US 20030102124 A1, US 20030100451 A1, US 20030098605A1, US 20030098149 A1, US 20030085034 A1, US 20030080604 A1, US 20030079877A1, US 20030075318 A1, US 20030070807 A1, US 20030066644 A1,US 20030066642 A1 , US 20030062164 A1,US 20030062154 A1,US 20030051872 A1 , US 20030024699A1, US 20030019626 A1, US 20030006039 A1,US 20020191969 A1, US 20020191968 A1,US 20020170708 A1, US 20020132862 A1,US 20020117303 A1 , US 20020108753 A1,US 20020104654 A1,US 20020096320 A1, US 20020084074A1, US 20020077515 A1,US 20020076212 A1, US 20020074117 A1 , US 20020066565A1, US 20020062961 A1, US 20020062959 A1,US 20020062052 A1 , US 20020062051A1, US 20020057905 A1, US 20020056552 A1,US 20020056551 A1, US 20020053436A1, US 20020053435 A1, US 20020053432 A1,US 20020053431 A1, US 20020053429A1, US 20020052297 A1, US 20020050357 A1,US 20020050356 A1, US 20020050353A1,

US 20020050352 A1, US 20020049360 A1,US 20020049358 A1, US 20020046883A1, US 20020046839 A1, US 20020046838 A1,US 20020046837 A1, US 20020046832A1, US 20020045553 A1, US 20020043405 A1,US 20020043367 A1,US 20020043366A1, US 20020043365 A1, US 20020040781 A1,US 20020040780 A1,US 20020040779A1, US 20020040778 A1,US 20020040177 A1, US 20020040173 A1,US 20020039486A1, US 20020038712 A1,US 20020038711 A1,US 20020038710 A1,US 20020038709 A1 , US 20020038708 A1,US 20020038706 A1, US 20020038705 A1, US 0020038069A1, US 20020036103 A1 , US 20020036089 A1,US 20020036084 A1,US 20020036083A1, US 20020035307 A1,US 20020034380 A1,US 20020033280 A1,US 20020033257A1, US 20020033256 A1,US 20020033255 A1,US 20020033254 A1, US 20020033253A1, US 20020029885 A1, US 20020029884 A1, US 20020029882 A1, US 20020029881A1, and US 20020027001 A1.

See, for example, U.S. Patent Application Publication number 2002/0027001, which discloses in paragraph 400 a heater having a diameter of 2.8 cm and an opening at least 5.0 cm. This meets the claimed ratio of 1.5 times the diameter. The richness of the formation is shown at least by figure 105.

The applied references have a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the references, they constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 121- 124, 126-128, 140-147 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vinegar, et al. (U.S. Patent number 5,411,089).

Vinegar teaches a process of treating including the steps or providing heat and allowing heat to transfer. Vinegar also explicitly teaches the size of the wellbore based on a determination of expansion of the formation and the ratio less than 0.75. Vinegar fails to explicitly disclose the determination such that the expansion is not sufficient to cause significant deformation.

One of ordinary skill in the art would have known that it would have been desirable to prevent substantial deformation of the heater, therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Vinegar process with a determination that the expansion is not sufficient to cause significant deformation as called for in claim 121.

Vinegar teaches the open bore called for in claim 122.

Vinegar also discloses the liner as called for in claims 140-142.

With regards to claim 123-124, 127-128, 143-147: relative size is not generally given patentable weight absent a showing of unexpected results.

4. Claims 188-199 and 201-205 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vinegar (6,023,554). Vinegar discloses a system including an elongated heater. Vinegar lacks the richness of the formation, and fails to explicitly disclose the relative diameters. One of ordinary skill in the art would have found it obvious to have placed the Vinegar system in a formation having a richness as claimed, since one of ordinary skill in the art would have understood the inherent desirability of a rich deposit. With regards to the relative dimensions: see In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. It is apparent that modifying the device taught by Vinegar to have the claimed dimensions would result in a different operation than contemplated by Vinegar. Insofar as applicant's invention is the dimensions are configured to prevent deformation, that does not provide any distinction to apparatus, since the deformation is a function of the thermal expansion, which is due to various operating parameters, such as temperature.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Process claims 121-154 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. US 6973967 B2 ,US 6969123 B2, US 6966372 B2, US 6959761 B2, US 6953087 B2, US 6951247 B2, US 6948563 B2, US 6929067 B2, US 6923258 B2, US 6923257 B2, US 6918443 B2, US 6918442 B2, US 6913078 B2, US 6910536 B2, US 6902004 B2, US 6902003 B2, US 6896053 B2, US 6889769 B2, US 6880635 B2, US 6880633 B2, US 6877554 B2, US 6871707 B2, US 6866097 B2, US 6820688 B2, US 6805195 B2, US 6789625 B2, US 6782947 B2, US 6769485 B2, US 6763886 B2, US 6761216 B2, US 6758268 B2, US 6752210 B2, US 6749021 B2, US 6745837 B2, US 6745832 B2, US 6745831 B2, US 6742593 B2, US 6742589 B2, US 6742588 B2, US 6742587 B2, US

6739394 B2, US 6739393 B2, US 6736215 B2, US 6732796 B2, US 6732795 B2, US 6732794 B2, US 6729397 B2, US 6729396 B2, US 6729395 B2, US 6725928 B2, US 6725921 B2, US 6725920 B2, US 6722431 B2, US 6722430 B2, US 6722429 B2, US 6719047 B2, US 6715549 B2, US 6715548 B2, US 6715547 B2, US 6715546 B2, US 6712137 B2, US 6712136 B2, US 6712135 B2, US 6708758 B2, US 6702016 B2, US 6698515 B2, US 6688387 B1, US 6607033 B2, US 6591907 B2, US 6591906 B2, US 6588504 B2, US 6588503 B2, and US 6581684 B2, in view of Vinegar (U.S. Patent number 5,411,089). The claims in the instant application are generally broader than the corresponding claims in the cited patents; except the patents fail to claim the determination and sizing of the well. This is obvious, as stated above in the rejection under 103.

7. Apparatus claims 188-205 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. US 6929067 B2, US 6789625 B2, and US 6769483 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in the instant application are generally broader, except they recite limitations concerning the type of formation and dimensions of the well and heater. The relative dimensions are not given patentable weight, since one of ordinary skill in the art would understand that dimensions are generally matters of engineering design; and the particular formation characteristics would have been obvious, since rich formations would be desirable for production.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kreck whose telephone number is 571-272-7042. The examiner can normally be reached on Mon-Thurs 530am-2pm; Fri: telework.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on 571-272-7049. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John Kreck
Primary Examiner
Art Unit 3673

21 December 2005